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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,386	07/25/2003	Brian L. Ganz		3919

7590 07/05/2007

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EXAMINER
HUNG, YUBIN

ART UNIT	PAPER NUMBER
2624	

MAIL DATE	DELIVERY MODE
07/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/627,386	GANZ ET AL.	
	Examiner	Art Unit	
	Yubin Hung	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-14 and 17-26* is/are rejected.

7)☒ Claim(s) *2, 3, 15 and 16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code (e.g., on page 4). Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01 (VII).

2. Regarding cross-references to related applications, the recited application No. 09/982,048 is now. U.S. patent 6,985,616 and correction is required. See 37 CFR 1.78 and MPEP § 201.11.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 8-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 8 recites the limitation "said at least one camera lens" in line 4. There is insufficient antecedent basis for this limitation in the claim since "said lens" in line 2 is not necessarily a camera lens (per claims 4 and 5). Claims 9 and 10 inherit the same problem per dependency and are similarly rejected.

Claim Rejections - 35 USC § 103

[Note: The subject matters recited in claims 1-7, 11-20 and 24-25 first appear in the instance application (pp. 34-40 and Figs. 41-58). Therefore the priority date of its parent application 09/982,048 (now U.S. Patent 6,985,616) does not apply.]

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1, 4, 5, 14, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Derndinger (US 5,239,178).

8. Regarding claim 1, and similarly claim 14, Derndinger discloses a device [Fig. 8; Col. 7, line 50-Col. 8, lines 49] comprising

- a lens
  [Fig. 8, ref. 90; Col. 7, line 64-68]

- a plurality of LEDS arranged in an array underneath said lens, comprising: 1) lighted LEDS, and 2) unlighted LEDS
[Fig. 8, refs. 81-83i (collectively a light source underneath the lens 88) and Col. 7, line 51-59. Note that Fig. 3, refs. 31 & 311 (array of LEDs); Col. 6, lines 41-49 and Col. 7, lines 6-15 disclose the use of LEDs as the light source]
- at least one computer in communication control of said light source, wherein said at least one computer is programmed to turn on selected LEDS from said plurality of LEDS to form said lighted LEDS, and turn off other selected LEDS from said plurality of LEDS to form said unlighted LEDS, wherein said lighted LEDS form a pattern underneath said lens
[Fig. 8, ref. 94 (computer) & 97 (switching on/off 83a-83i under computer control), Col. 7, lines 53-57 and Col. 8, lines 37-40. Note that the use of LEDs is disclosed in Fig. 3, refs. 31 & 311 (array of LEDs) & 18 (computer); Col. 6, lines 41-49; and Col. 7, lines 6-15. Note further that the specific number of LEDs that are turned on (Col. 7, lines 11-12) form a pattern]

Note that it would have been obvious to one of ordinary skill in the art to use LEDs as disclosed in Fig. 3, ref. 31 and Col. 7, lines 6-15 of Derndinger as the illumination source in the embodiment of Fig. 8 because of the advantage that specific partial quantities of the LEDS can be turned off and on, as Derndinger indicates in Col. 7, lines 10-14.

9. Regarding claim 4, and similarly claim 17, note that in the embodiment of Fig. 8, lens 90 is part of the scanning microscope [Col. 7, lines 50-52 & 65-67].

10. Regarding claim 5, and similarly claim 18, note that in the embodiment of Fig. 8 can be considered as consisting of a camera (comprising elements 90-91i) and a microscope (comprising elements 81-88b) and in this case lens 90 is attached to the camera.

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11. Claims 6 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Derndinger (US 5,239,178) as applied to claims 1, 4, 5, 14, 17 and 18 above, and further in view of Sones (US 6,621,569).

Regarding claim 6, and similarly claim 19, Derndinger discloses all limitations of its parent claim 1 but not expressly the following, which Sones discloses

- wherein said pattern of lighted LEDS provides dark field illumination [Ref. 20 of Figs. 2 & 3; Col. 3, lines 63-66 and Col. 5, line 9-16]

Derndinger and Sones are combinable because they both have aspects that are from the same field of endeavor of image acquisition and at the time of the invention it would have been obvious to modify Derndinger with Sones's teachings as recited above so that only defects in the sample to be inspected will produce reflection and therefore is easy to detect in the acquired image, as Sones indicates in Col. 5, lines 13-16].

Therefore it would have been obvious to combine Sones with Derndinger to obtain the invention as specified in claim 6.

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12. Claims 7-10, 20-22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Derndinger (US 5,239,178) as applied to claims 1, 4, 5, 14, 17 and 18 above, and further in view of DeTitta et al. (US 6,368,402).

13. Regarding claim 7, and similarly claim 20, Derndinger discloses all limitations of its parent claim 1 but not expressly that the objects are microscopic crystals, which is taught by DeTitta [Figs. 1-5 (single-well crystallization), 6 (16 wells), 7 (digital image of crystallization result); Col. 10, lines 36-60 (image acquisition)]

Derndinger and DeTitta are combinable because they both have aspects that are from the same field of endeavor of image acquisition.

At the time of the invention it would have been obvious to modify Derndinger with the teachings of DeTitta as recited above and the motivation would have been because the inspection of microscopic crystals is a well-known and common need and is widely performed operation in a biotech laboratory, as applicant admits in P. 3, 3rd paragraph of the instance application and it would have been desirable to be able to scan the crystal sample to obtain its image in a short time [Derndinger: Col. 1, lines 53-55] so that image analysis techniques can be applied to evaluate them [Derndinger: Fig. 1, ref. 18; Col. 6, lines 20-23].

Therefore it would have been obvious to combine DeTitta with Derndinger to obtain the invention as specified in claim 7.

14. Regarding claims 8 and 10, and similarly claims 21 and 23, the combined invention of Derndinger and DeTitta further discloses

(Per Derndinger:)

- at least one camera attached to said lens
  [Fig. 8, ref. 90 (lens), 91 (camera); Col. 7, line 64-Col. 8, line 3]
- an indexing device for sequentially placing said microscopic crystals in camera-view of said at least one camera lens
  [Fig. 8, ref. 86 (object table, i.e., indexing device); Col. 8, lines 26-33]
- wherein said at least one computer is programmed to control said indexing device and said at least one camera, wherein said at least one computer is programmed to receive from said at least one camera images of said plurality of microscopic crystals
  [Fig. 8, ref. 94 (computer); Col. 8, lines 1-3 (receive camera images) and 26-33 (control the indexing device)]
- wherein said at least one computer is programmed to (evaluate) said plurality of microscopic crystals
  [Fig. 1, ref. 18 (computer); Fig. 8, ref. 94 (computer); Col. 6, lines 20-23. Note that classification as the evaluation operation is taught by DeTitta, see below]

In addition, DeTitta teaches classification of the crystals (as the evaluation) [Figs. 6-7; Fig. 8, refs. 30 (scoring) and 32 (classification result ranked by scores); Col. 7, lines 4-34].

15. Regarding claim 9, and similarly claim 22, the combined invention of Derndinger and DeTitta further discloses

- further comprising a computer monitor, wherein an operator interfacing with said at least one computer manually inputs a score to classify said plurality of microscopic crystals after observing said plurality of microscopic crystals on said computer monitor
  [DeTitta: Fig. 8: (assigning 0 or 1 to form a score for an unknown protein); Fig. 9, ref. 36 (operator interfacing with a monitor); Col. 7, lines 4-34]

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16. Claims 11, 12, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Derndinger (US 5,239,178) as applied to claims 1, 4, 5, 14, 17 and 18 above, and further in view of Jusoh et al. (US 6,207,946).

Regarding claims 11 and 12, and similarly claims 24 and 25, Derndinger discloses all limitations of its parent claim 1 but not expressly the following, which Jusoh discloses

- (claim 11) wherein said computer is further programmed to vary the intensity level of said plurality of LEDS and
(claim 12) wherein said intensity level is variable from off to full current on
[Fig. 1, ref. 24 (LED array) & 74 (intensity control); Figs. 2-5 (LED arrays); Col. 4, lines 35-63; Col. 5, lines 12-20; and Col. 7, lines 24-35]

Derndinger and Jusoh are combinable because they both have aspects that are from the same field of endeavor of image acquisition and at the time of the invention it would have been obvious to modify Derndinger with Jusoh's teachings as recited above so as to acquire images with suitable contrast for inspection, as Jusoh indicates in Col. 5, lines 14-17].

Therefore it would have been obvious to combine Jusoh with Derndinger to obtain the inventions as specified in claims 11 and 12.

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17. Claims 13 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Derndinger (US 5,239,178) as applied to claims 1, 4, 5, 14, 17 and 18 above, and further in view of Lys et al. (US 2002/0101197).

Regarding claim 13, and similarly claim 26, Derndinger discloses all limitations of its parent claim 1 but not expressly the following, which Lys discloses

- wherein said pattern of lighted LEDS comprises at least two intensity levels
[Fig. 10, ref. 1002 (LED array); Col. 4, lines 35-63; P. 11, paragraph 131, lines 11-19]

Derndinger and Lys are combinable because they both have aspects that are from the same field of endeavor of illumination and at the time of the invention it would have been obvious to modify Derndinger with Lys's teachings as recited above so as to provide more illumination levels in order to obtain proper contrast in the acquired images. [For example, see the analysis of claims 11 and 12 above. Also note that if a group of, say, 3 LEDs are lit at the same intensity, then with, say, 3 intensity levels each (assuming the LEDs all have the same color), only 3 different intensity levels can be produced for the group of 3 LEDs; on the other hand, if the LEDs can be lit at different levels, then a total of 7 different intensity levels can be produced by the group.]

Therefore it would have been obvious to combine Lys with Derndinger to obtain the inventions as specified in claim 13.

Allowable Subject Matter

18. Claims 2. 3, 15 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

19. The following is a statement of reasons for the indication of allowable subject matter:

A. Regarding claims, 2, 3, 15 and 16, closest art of record Brooker (US 2003/0030896) in [Fig. 8 and P. 4, paragraph 53] and Montagu (US 6,407,858) in [Fig. 2, refs. 14 (lens), 32 (oscillating arm) & 60 (biochip); Figs. 7 & 8; Col. 7, lines 37-53] disclose moving the lens (along with the illumination) laterally over the object to be imaged. However, none disclose, suggest or teach moving the lens over and laterally relative to a plurality of LEDs and keep a pattern of lit LEDs underneath the lens as it is being moved.

Conclusion and Contact Information

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Lapeyre (US 4,948,247) – discloses a microscope illuminated by a ring array of LEDs with a camera attached to acquire images [Figs. 2-4]
- Kondou et al. (US 5,293,428) – discloses an optical for image recognition that comprises an illuminated microscope attached to a camera and with a horizontally movable support for samples to be images [Fig. 1]
- Hartley et al. (US 5,544,254) – discloses an apparatus for classifying and sorting crystalline objects

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yubin Hung whose telephone number is (571) 272-7451. The examiner can normally be reached on 7:30 - 4:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew C. Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

22. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Art Unit 2624
June 19, 2007

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